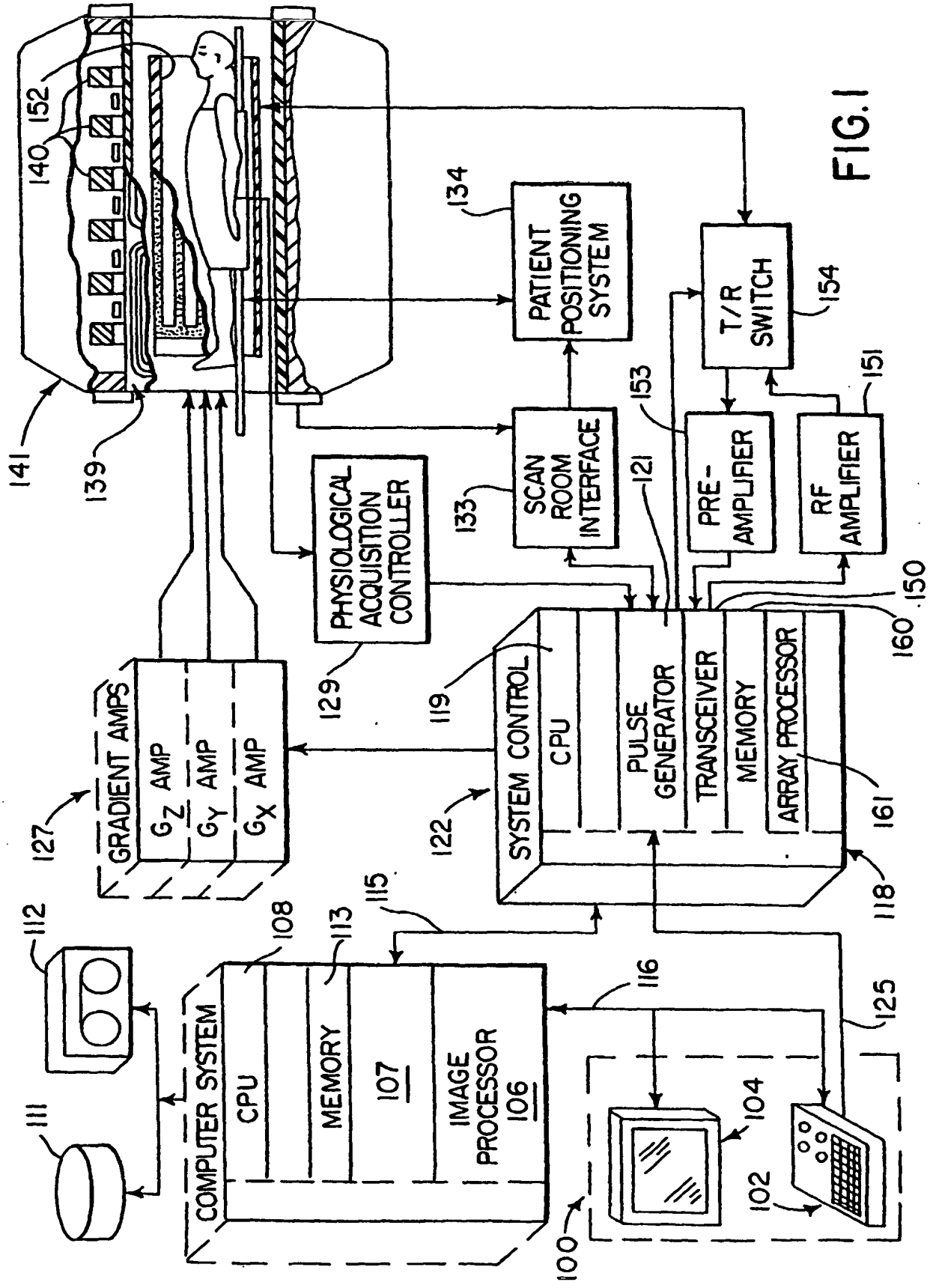

152
140
134
PATIENT POSITIONING SYSTEM
T/R SWITCH
154
153
151
141
139
SCAN ROOM INTERFACE
133
121
PRE-AMPLIFIER
RF AMPLIFIER
PHYSIOLOGICAL ACQUISITION CONTROLLER
129
150
160
119
SYSTEM CONTROL
CPU
PULSE GENERATOR
TRANSCEIVER
MEMORY
ARRAY PROCESSOR
161
127
GRADIENT AMPS
G_Z AMP
G_Y AMP
G_X AMP
122
118
115
112
108
113
116
125
COMPUTER SYSTEM
CPU
MEMORY
107
IMAGE PROCESSOR 106
111
104
102
100

FIG. 1

FIG. 2A

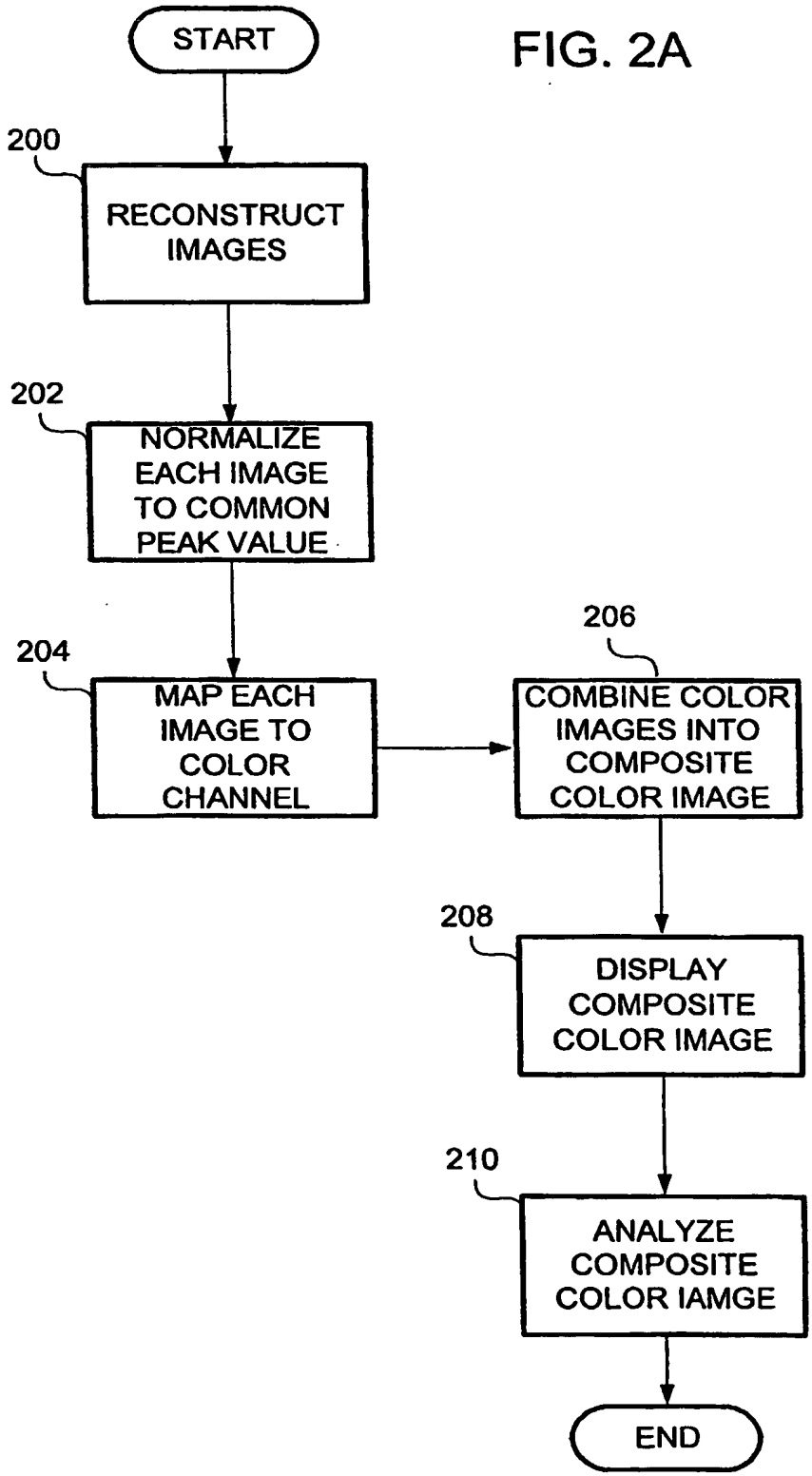
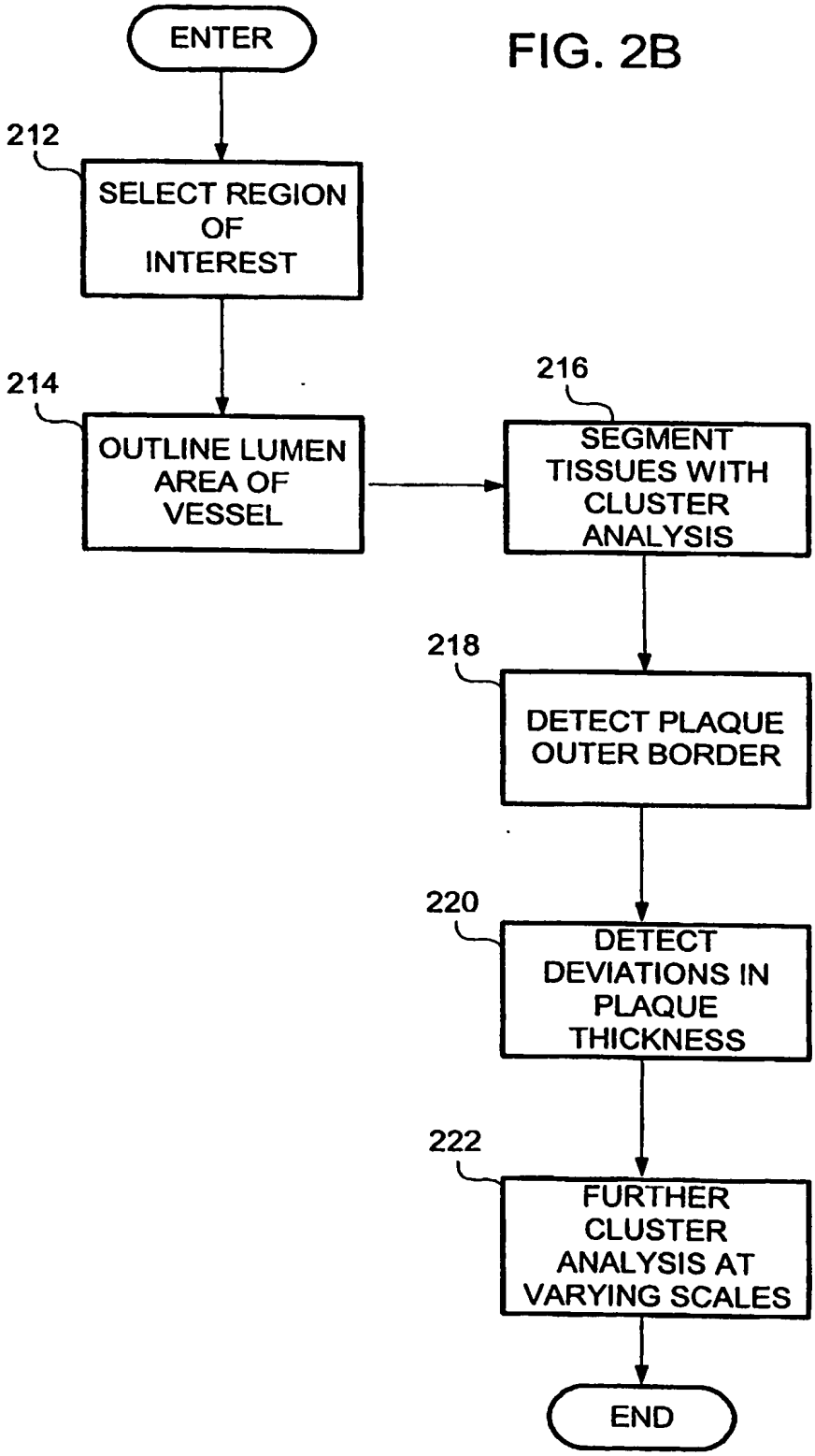

START
200
RECONSTRUCT IMAGES
202
NORMALIZE EACH IMAGE TO COMMON PEAK VALUE
204
MAP EACH IMAGE TO COLOR CHANNEL
206
COMBINE COLOR IMAGES INTO COMPOSITE COLOR IMAGE
208
DISPLAY COMPOSITE COLOR IMAGE
210
ANALYZE COMPOSITE COLOR IAMGE
END

FIG. 2B


ENTER
212
SELECT REGION OF INTEREST
214
OUTLINE LUMEN AREA OF VESSEL
216
SEGMENT TISSUES WITH CLUSTER ANALYSIS
218
DETECT PLAQUE OUTER BORDER
220
DETECT DEVIATIONS IN PLAQUE THICKNESS
222
FURTHER CLUSTER ANALYSIS AT VARYING SCALES
END

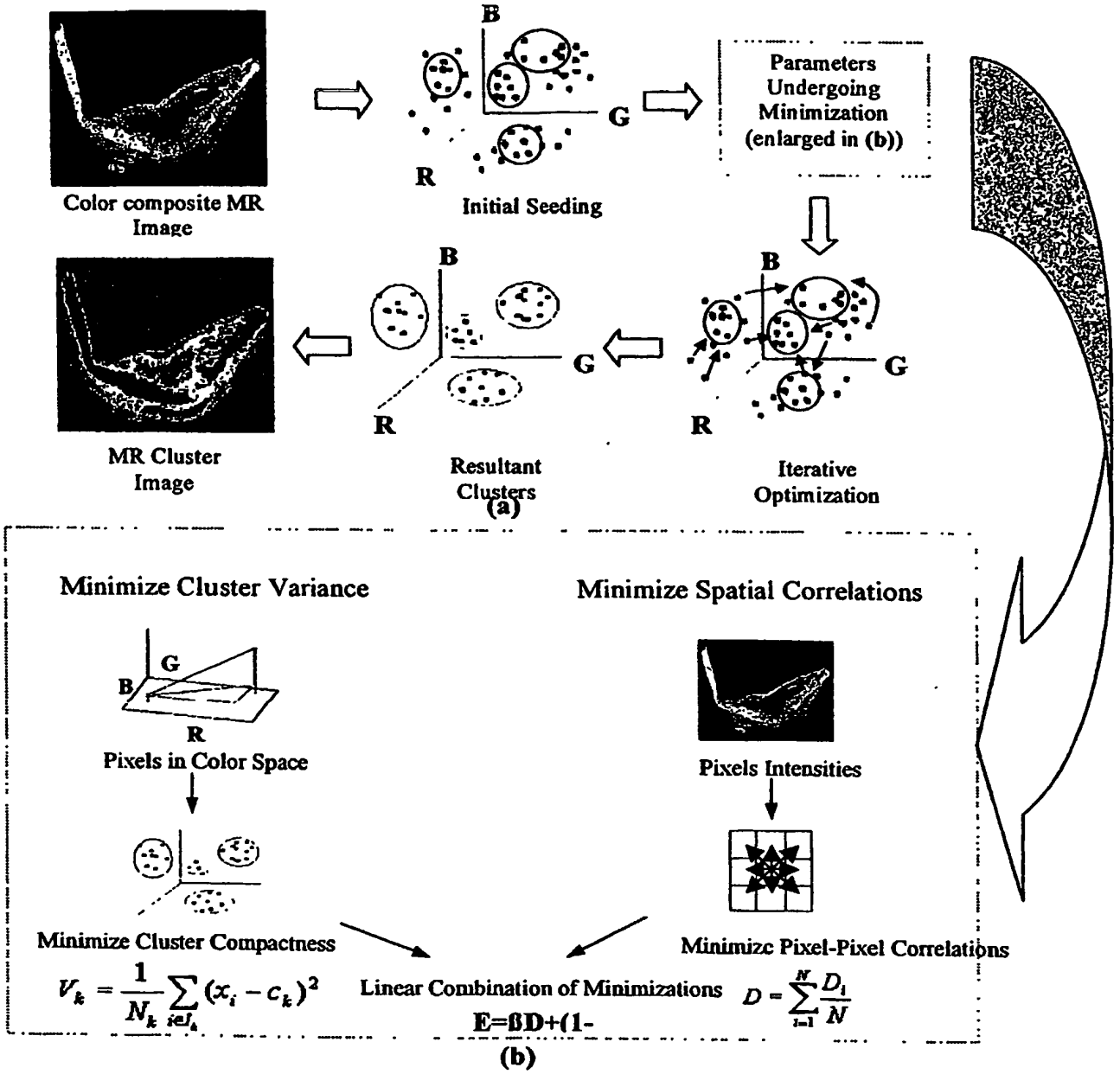


FIG. 3

BEST AVAILABLE COPY

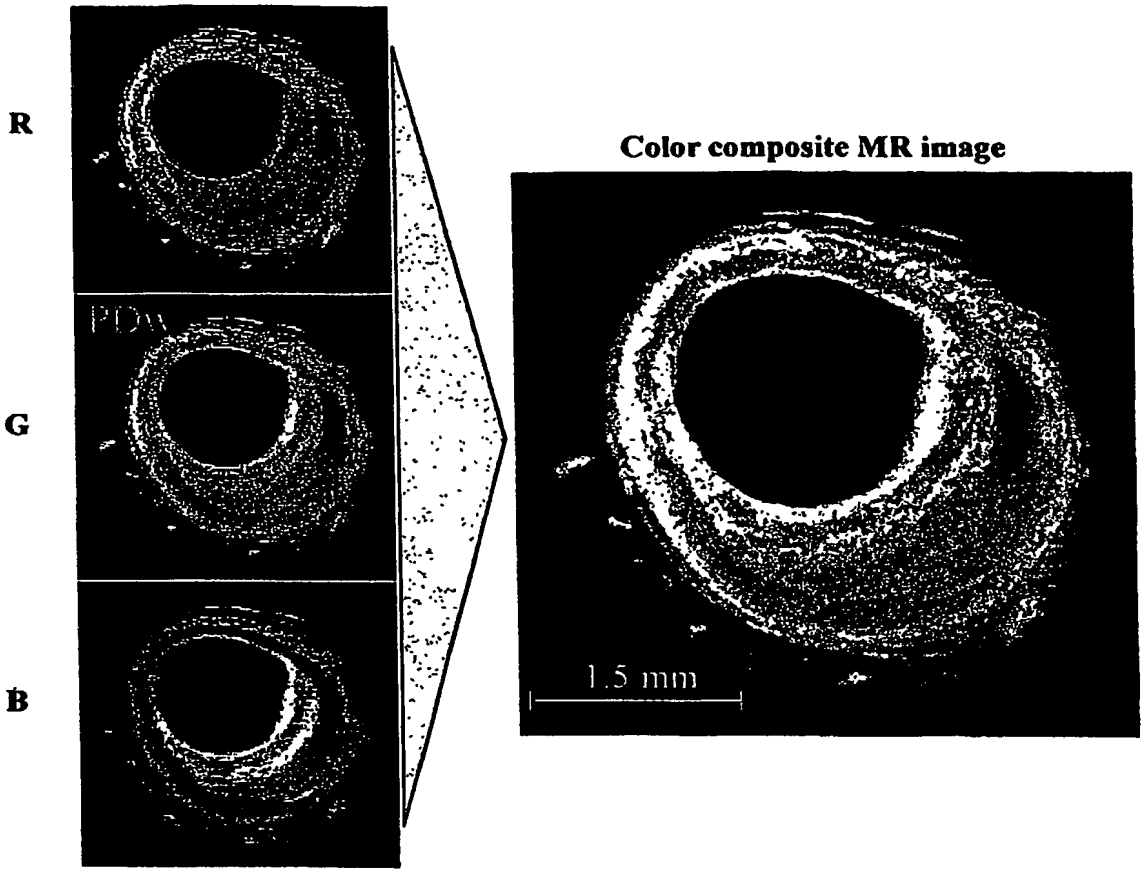


FIG. 4

BEST AVAILABLE COPY

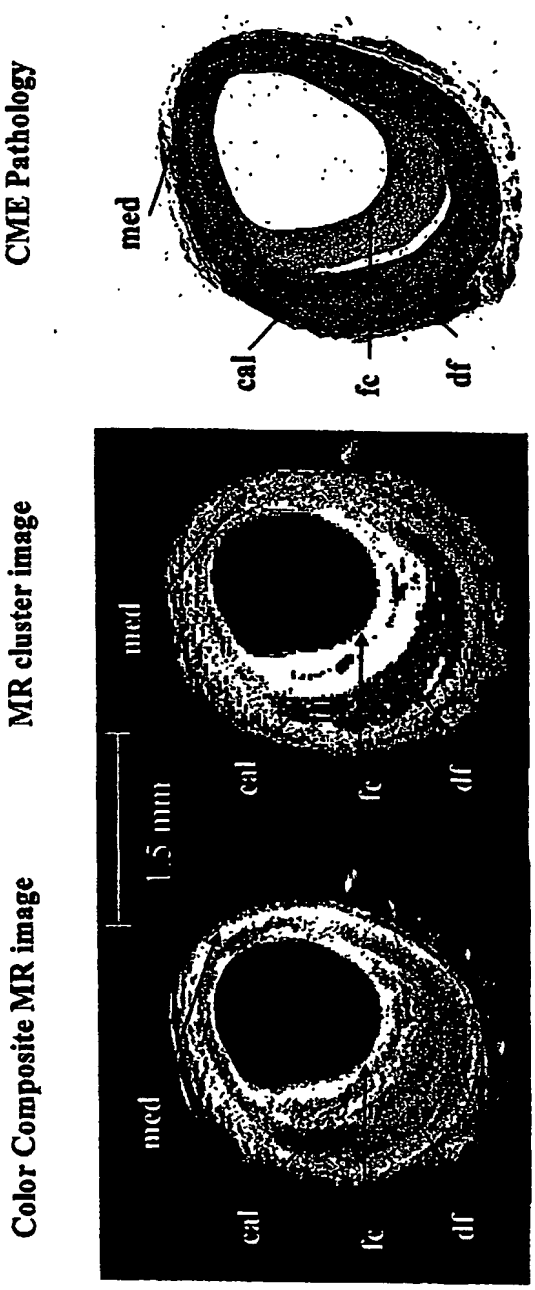
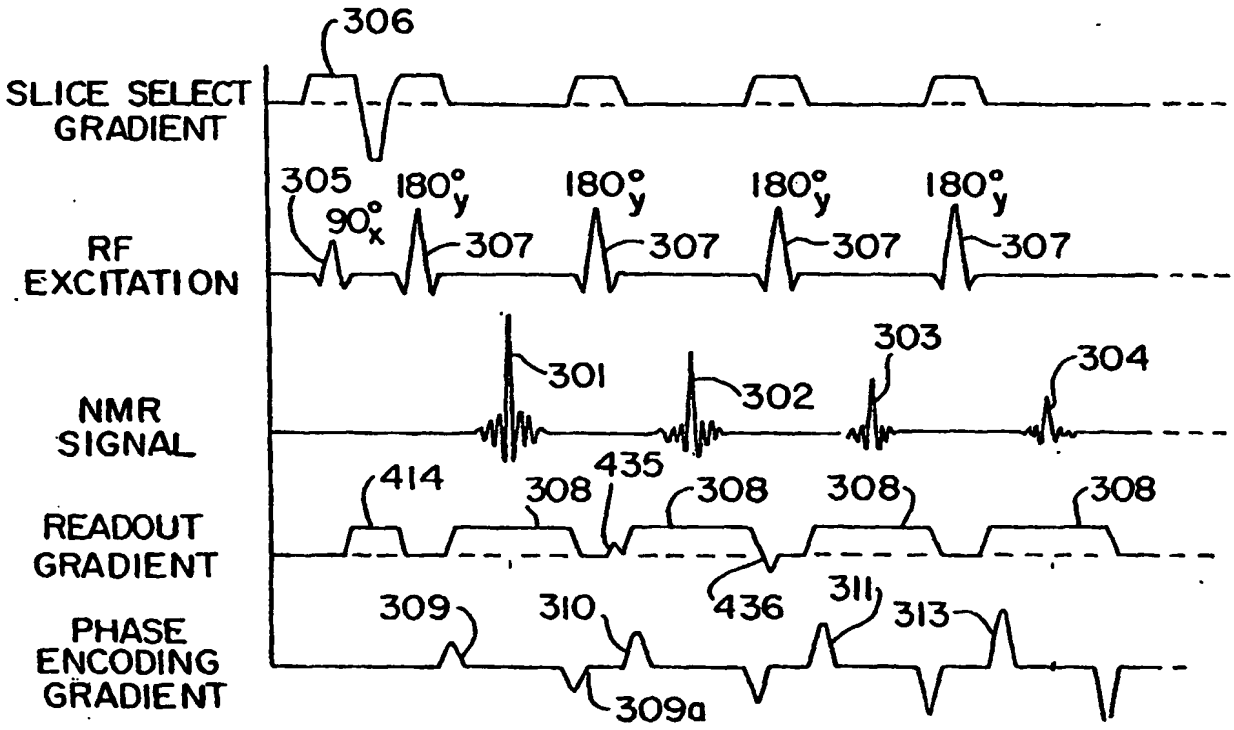


FIG. 5

BEST AVAILABLE COPY

FIG. 6


306
SLICE SELECT GRADIENT
305
90°x
180°y
307
RF EXCITATION
301
302
303
304
NMR SIGNAL
414
308
435
436
READOUT GRADIENT
309
310
309a
311
313
PHASE ENCODING GRADIENT

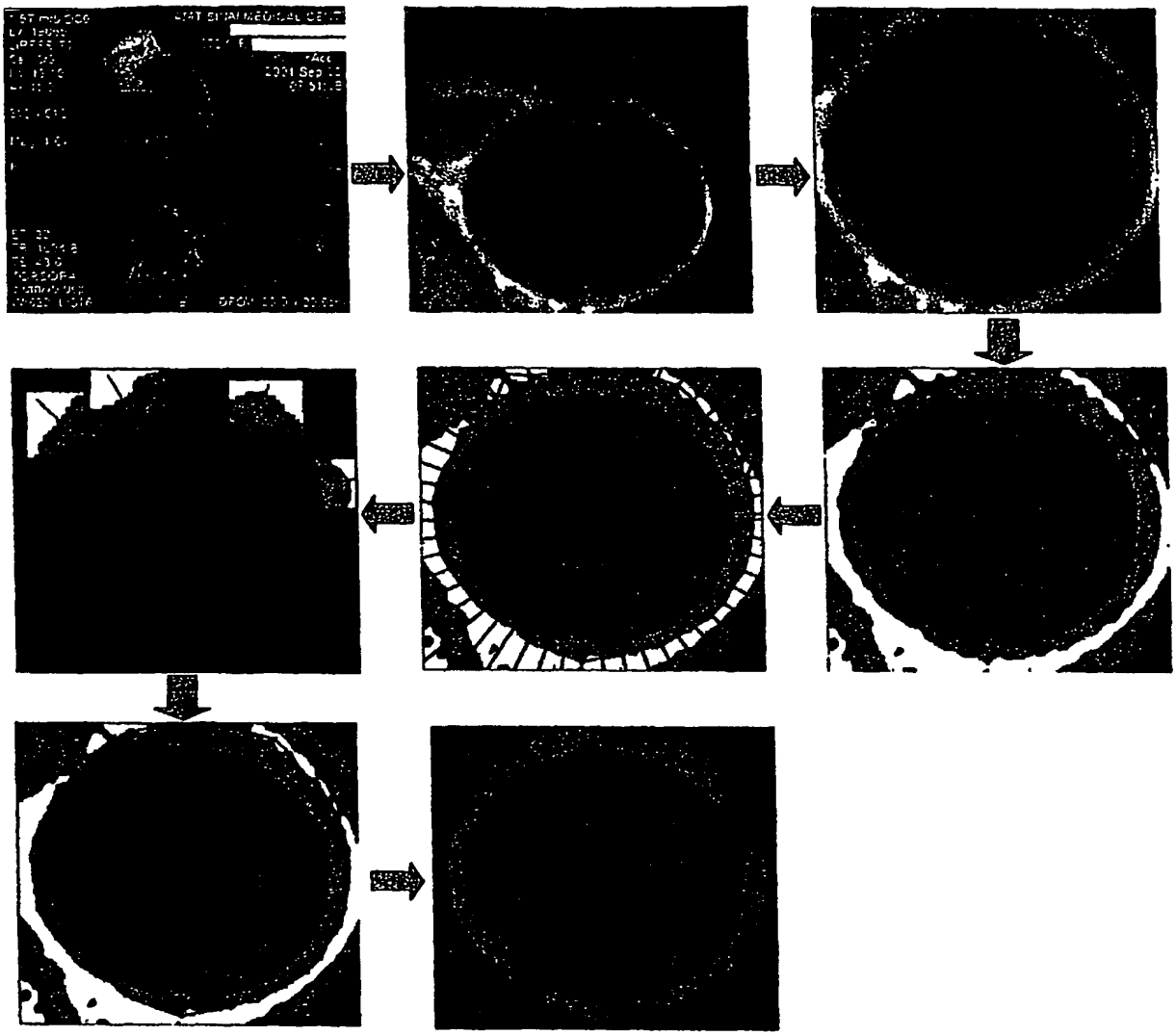


FIG. 7

BEST AVAILABLE COPY

Tissue Type / Comparison Type	Loose Fibrous, N=11			Media, N=22			Fibro-cellular, N=20			Lipid/necrotic core, N=7			Thrombus, N=3			Dense fibrous, N=11		
	r	bias	lim	r	bias	lim	r	bias	lim	r	bias	lim	r	bias	lim	r	bias	lim
Histopathology Tracing & Cluster-analyzed MRI	.78	2%	±8%	.84	0%	±8%	.89	0%	±6%	.76	2%	±6%	.98	3%	±3%	.83	1%	±5%
Histopathology Tracing & Cluster-analyzed MRI reduced resolution	.69	3%	±9%	.61	2%	±11%	.55	5%	±13%	.77	0%	±6%	.85	4%	±4%	.74	3%	±9%
Histopathology Tracing & Color-space Matching	.58	4%	±9%	.51	4%	±14%	.40	2%	±9%	.37	6%	±11%	.60	4%	±7%	.23	2%	±11%

FIG. 8